



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,680	09/19/2003	Kendra Gallup	10030768-1	6256
57299	7590	10/19/2006	EXAMINER	
AVAGO TECHNOLOGIES, LTD.			CHIEM, DINH D	
P.O. BOX 1920			ART UNIT	
DENVER, CO 80201-1920			PAPER NUMBER	
			2883	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/665,680

Applicant(s)

GALLUP ET AL.

Examiner

Erin D. Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the remarks filed on July 25, 2006. Claims 1-20 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-10, 12-14, 17, 18, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kilian (US Application 2004/0190836 A1 “Kilian”).

Regarding claims 1, 10, 14, 18, and 20 Kilian discloses a device comprising: a sub-mount containing conductive traces exposed [0026] at a first surface of the sub-mount; a die 30 mounted on the sub-mount and containing an edge-emitting laser 30 that is electrically coupled to the conductive traces; and a reflector 40 positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount 24.

Regarding claim 3, the device further comprising a lens in the path of the optical signal and the first surface 50.

Regarding claim 4, wherein the lens is integrated in the sub-mount along the path of the optical signal (Fig. 1).

Regarding claim 5, wherein the lens comprises a diffractive optical element 52.

Regarding claims 6 and 17 wherein the reflector comprises a portion of an inner wall of a cavity 38 in a cap overlying the die.

Regarding claims 7 and 12 wherein the cap attaches to the sub-mount to hermetically seal the die in the cavity [0029].

Regarding claim 8, the device further comprising a transparent encapsulant attached to the sub-mount and encasing the die 24.

Regarding claims 9 and 13 wherein the encapsulant comprises silicone [0029].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian in view of Freeman et al. (US 5,195,156 "Freeman").

Kilian discloses a device comprising: a sub-mount containing conductive traces exposed [0026] at a first surface of the sub-mount; a die 30 mounted on the sub-mount and containing an edge-emitting laser 30 that is electrically coupled to the conductive traces; and a reflector 40 positioned to reflect an optical signal from the edge-emitting laser through the first surface and through the sub-mount 24.

However, Kilian does not teach an alignment post attached to the sub-mount where the optical signal emerges from the sub-mount.

Freeman discloses an optical fiber connector assembly, which employs a laser emitting diodes formed on a semiconductor wafer, similar to one taught by Kilian. The laser diode is mounted in a package 103, shown in Fig. 1, and Freeman further teaches an alignment post 200 which acts as a passive alignment tool to direct the emitting light from the laser diode in the package 103 to be transmitted to the desired destination.

Since Freeman et al. and Kilian are both from the same field of endeavor, the purpose disclosed by Freeman et al. would have been recognized in the pertinent art of Kilian

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide an alignment method such as the alignment posts taught by Freeman et al. such that the invented optical device may allow light to be coupled into the device or perhaps made available for light to be coupled out such that the signal maybe transmitted out. The alignment post as taught by Freeman et al. allows the optical device to easily align the optical signal being transmitted by the fiber into another device which have means to accept the alignment posts made with specific alignment parameters.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilian and Mizutani et al. (US 5822352 "Mizutani" hereinafter).

In teaching the apparatus, Kilian also teaches the process limitations of electrically connecting a laser to a sub-mount and attaching a reflector such that the optical signal is reflected through the sub-mount. However, Kilian does not expressly teach electrically connecting the

Art Unit: 2883

laser comprises connecting a plurality of lasers to a sub-mount wafer that includes the sub-mount and furthermore, cutting the sub-mount wafer to separate sub-mount from similar sub-mounts.

Mizutani teaches an optoelectronic apparatus having laser structures grown by a crystal growth on to the wafer (col. 13, line 53-55). And furthermore the crystal growth method teach by Mizutani is also commonly used in the semiconductor art for cost effective method of forming transistors, in this case optoelectronic devices, all on the same wafer and further cut the separately grown components on the wafers into separate parts.

Since Mizutani and Kilian are both from the same field of endeavor, the purpose disclosed by Mizutani would have been recognized in the pertinent art of Kilian.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the method used to produce semiconductors, crystal growth on same wafer, for the making of an optoelectronic device since the material used are semiconductor material and have the same characteristics of semiconductor components. Such methods have been found to be cost effective for mass production.

Response to Arguments

Applicant's only arguments are:

- Kilian fails to disclose a structure that directs an optical signal passes through a surface on which traces of a sub-mount are exposed.
- Killian fails to disclose the invention of claim 10.

Art Unit: 2883

Examiner's responses are:

- Element 22 has a recess therefore it constitute as a sub-mount surface. Light is being reflected and exits through at element 38.
- With regards to claim 10, element 38 is mounted in a position such that an optical signal from the laser is reflected through the sub-mount.

Freeman's reference is applied to supply the deficiency of the limitation reciting an alignment post attached to the sub-mount. Therefore, applicant's argument regarding Freeman not teaching the optical signal that passes through a surface on which traces of sub-mount are exposed is not relevant.

Examiner has addressed all of the relevant arguments and maintains the rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2883

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

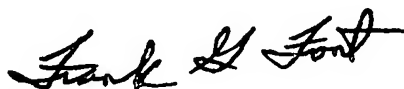
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800